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The University of Alberta

The Relationship Among Affective, Motivational Factors and Reading Achievement for Grade 7-9 LD Students

by

Sandra Ellen Hungle

A Thesis

Submitted to the Faculty of Graduate Studies and Research

in Partial Fulfillment of the Requirements for the Degree of

Master of Education

in

Special Education

Department of Educational Psychology

Edmonton, Alberta

Spring, 1989

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FACULTY OF GRADUATE STUDIES AND RESEARCH

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research, for acceptance, a thesis entitled The Relationship Among Affective, Motivational Factors and Reading Achievement for Grade 7 - 9 LD Students submitted by Sandra Ellen Hungle in partial fulfilment of the requirements for the degree of Masters of Education.

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Date Dec 2/88

DEDICATION

To my three daughters, Jody, Stacey and Sara, for providing me with the will to carry on during the difficult times.

Abstract

The purpose of this study was to determine the affective variables (as measured by the Perception of Ability Scale for Students) and motivation orientation (as measured by A Scale of Intrinsic Versus Extrinsic Orientation in the Classroom) of grade seven, eight and nine learning disabled adolescents, and to study the relationships among these variables and reading achievement. The sample consisted of 15 male and 9 female learning disabled students with average or higher potential (as indicated by performance on the WISC-R), who in spite of average potential, demonstrated an achievement discrepancy (as indicated by their below average scores in reading achievement as measured by The Informal Reading Assessment).

The results of this study indicated that these LD adolescents had below average to weak levels of self concept, and significant differences in self-concept were found between the grade seven, eight, and grade nine LD students. A moderate correlation (r=.505) was found between the reading/spelling self-concept subscale and instructional reading comprehension grade level. This indicated that among the twelve motivational and affective factors this thesis investigated, positive perceptions of reading/spelling ability emerged as the best predictor of reading achievement.

An analysis of the scattergrams indicated that within this total group of LD adolescents, several subgroups could be identified, and that variations in self-concept and motivation could also be observed in the performance of individual students. It was concluded that affective and motivational factors must be considered when planning intervention programs for severely learning disabled adolescents. The need for researchers and practitioners to focus more on individual characteristics, rather assuming homogeneity among this population, is also emphasized.

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CHAPTER I

Introduction

Since the introduction of the term Learning Disability by Samuel Kirk in 1962, a tremendous research effort has been directed toward the understanding and remediation of this disability. The largest part of this research has involved elementary aged school children. Originally, perceptual motor processes related to achievement were investigated, and only recently has attention been directed toward adolescents and adults with learning disabilities.

Achievement remains the major focus, but to better understand the dynamics of the disability, affective and motivational variables have been posed as being part of the construct of this disability. The importance of considering the affective variables (particularly self-concept and motivation) in relation to achievement in the learning disabled (LD) adolescent has been emphasized by a variety of researchers. (Deci, 1986; Chapman, 1988; Paris and Oka, 1986; Harter, 1981; Alexander and Heatherington, 1988).

On measures of academic related self-concept, LD children in Grades 3-6 generally exhibit more negative self-concept than do similar aged non LD peers. As LD elementary students progress into the junior high years, the most debilitating effects of failure are thought to become much more pronounced, however Chapman (1988), in his extensive review of the literature on the self-concept of LD students, found that there were too few studies available to make any conclusive statements about the academic self-concept of LD adolescents.

The relationship of self-esteem and motivation to achievement appears to be critical. It is the interaction among these affective variables and cognitive skills that promotes self-regulated, mastery oriented learners (as characterized by non LD students) in contrast to the passive, helpless and maladaptive orientation towards learning (as exhibited by most LD students). In order to develop effective interventions for LD adolescents, it is essential to consider how these affective variables interact with and influence reading achievement.

Definition of Terms

The following definition of **Learning Disability** is the most widely used and accepted definition and will be used within the context of this study:

> "Specific learning disability" means a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, which may manifest itself in an imperfect ability to listen, think, speak, read, write, spell, or to do mathematical calculations. The term includes such conditions as perceptual handicaps, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. The term does not include children who have learning problems which are primarily the result of visual, hearing, or motor handicaps, of mental retardation, of emotional disturbance, or of environmental, cultural, or economic disadvantage. (Lerner, 1985, p. 2)

Several components of this definition are basic to most definitions of learning disabilities. The common elements of most definitions of learning disabilities include the following: "(1) neurological

dysfunction, (2) uneven growth patterns, (3) difficulty in academic and learning tasks, (4) discrepancy between achievement and potential, and (5) inclusion of other causes" (Lerner, 1985, p. 9). It is important to note that several researchers have emphasized the importance of including motivational and affective variables in the definition of learning disabilities (Deci, 1986; Chapman, 1988). Poplin (1984) stated that it is the interaction among a variety of variables that contributes to the development and severity of a learning disability.

According to Poplin (1984) "a Learning Disability results from some unfortunate interaction between students' neurology, previous experiences (both in and out of school), their expectations, interests, personalities, aptitudes and abilities, and the experiences, expectations, goals, physical characteristics, personalities, interests, and abilities encountered at school" (p. 132).

General or Global Self-concept is "the evaluation which the individual makes and customarily maintains with regard to himself - it expresses an attitude of approval or disapproval and indicates the extent to which an individual believes himself to be generally capable, significant, successful and worthy" (Coopersmith, 1967, pp. 4-5). For the purpose of this study, the terms self-concept and self-esteem will be used interchangeably.

Academic Self-concept, as measured by the Perception of Ability Scale for Students (PASS) and revised by Boersma and Chapman (in press), is based on the view that self-concept is

multifaceted and situation specific, and that perceptions of self-worth are directly related to a student's negative or positive perceptions of school related tasks. Academic self-concept involves "perceptions relate(d) to school in general, to satisfaction derived from school, to confidence in school work, and to beliefs about ability in specific subject areas" (Boersma and Chapman, in press, p. 5).

Intrinsic Versus Extrinsic Motivation Intrinsic motivation is "engaging in tasks for one's own personal satisfaction until they are successfully completed, as opposed to the engaging in tasks to appease teachers or obtain grades, which is termed extrinsic motivation" (Paris & Oka, 1986, p. 14).

CHAPTER II

Literature Review

Self-Concept and Learning Disabled Adolescents

Academic self-concept is a multifaceted construct which influences students' perceptions, feelings, emotions, and achievement in school. Above average levels of self-esteem are associated with a variety of positive social, emotional and academic skills, as summarized in Gurney :

> Previous research has found above average levels of self-esteem to be positively associated with better adjustment (Williams & Cole, 1969), more independent and less defensive behavior (Rosenberg,1965), less deviant behavior (Fitts, 1972), greater social effectiveness (Straugher & Rosenberg, 1970) and greater acceptance of other people (Suinn & Geiger, 1965). Moreover, in the context of the school, self esteem has also been found to be positively associated with school achievement (Purkey, 1970; Brookover, 1964; Simon, 1975).
>
> (Gurney,1987, p. 130)

The converse of Gurney's statements are critical to further understanding the relationship between low self-esteem, poor adjustment, defensive behavior, less acceptance of other people and lower school achievement. These comments are particularly relevant to understanding and remediating the negative self-concepts of LD students. These students have experienced years of failure and have developed self-concepts which are both negative, and considerably lower than those of nondisabled peers (Chapman, 1988). It can be assumed that LD students who exhibit

negative self-esteem may also exhibit a variety of inappropriate behaviors, such as poor social adjustment, more dependent behavior, less acceptance of other people, and low academic achievement. If these negative feelings of self-worth are not altered, it is possible that there will be pervasive and profound negative effects on development of social, emotional and educational skills, which might last into the adult years (Chapman and Wilkinson, 1988).

Self-concept, because of its pervasive effect on achievement, interacts with motivation variables and becomes a key variable to consider when attempting to understand the dynamics of learning disabilities in adolescents (Oka and Paris, in press). If students develop a negative self-concept, performance on academic tasks is inhibited. The student who perceives him/herself as low in ability, and who lacks confidence, will not invest time and/or effort in an activity that has almost always ensures failure (Dweck, 1988).

The self-concept of the LD student is considerably lower than that of his/her nondisabled peers; especially when measures of academic self-perceptions are employed. That is, LD students, on measures of academically related self-concept, consistently exhibit lower perceptions of their general ability in school, show below average levels of school satisfaction, below average levels confidence, and negative beliefs about ability to perform in the various subject areas of reading, arithmetic and penmanship/ neatness (Chapman, 1988).

Several researchers have speculated that self-concept becomes increasingly negative during the junior high school years, because LD

students at this level have experienced years of debilitating failure (Schumaker, Deshler and Ellis, 1986). However, few studies have examined the self-concept of LD adolescents to determine the perceptions of this group of students, or the relationship those perceptions have to achievement (Bender, 1987; Chapman, 1988).

Self-concept is a multifaceted construct that involves perceptions of self-worth in a variety of specific areas, such as reading, arithmetic, school satisfaction and general ability. Failure to develop an adequate (or average) level of self-concept is likely to negatively impact in the areas of both academic and social-emotional development (Deci, 1986).

Academic Self-Concept and the Learning Disabled Adolescent

Recent research has highlighted the importance of using an academic measure of self-concept (PASS) as opposed to a general measure such as the Piers-Harris. In order to clarify the importance of using an academic measure of self-concept, some criticisms of general self-concept will be outlined and two studies utilizing a general measure of self-concept will be analyzed. An extensive review by Chapman (1988) comparing the results of both academic and general measures of self-concept will also be outlined.

Several studies which assessed self-concept using a general measure reported only small differences between LD and non-LD students. This has led to misconceptions regarding the levels of self-concept of LD students, and to misconceptions regarding its importance to learning and the development of positive socio-emotional characteristics. Boersma and Chapman (in press)

have criticized general measures of self-concept on the basis of discriminant validity. That is, general measures of self-concept do not include enough items on each subscale to produce valid results. They also found that the same items appeared on more than one subscale, which also reduced the validity of the measure. General measures of self-concept were also criticized on the basis that they attempt to measure very broad areas of self-concept, such as happiness and satisfaction.

In order to understand the importance of using an academic, as opposed to a global measure of self concept with LD adolescents, it is essential to understand that most LD students develop negative self-perceptions to academic tasks, and it is highly probable that these negative self-perceptions affect other areas of self-concept, such as general happiness. LD students, by definition, have average or higher levels of intelligence. It is very likely then, that they are highly susceptible to the development of negative self-concept because they are able to reason and perceive that their academic achievement level is well below that of their 'normal' peers. Chapman emphasized the importance of utilizing an academic measure of self-concept with LD students: "Any answer to the fundamental question posed in this review, 'Do LD children have lower self-concepts than nonhandicapped children?' must distinguish between general and academic self-concept." (Chapman, 1988, p. 5).

An example of possible erroneous results and conclusions that can be derived by using a general measure of self-concept with LD

students is found in a study by Silverman and Zigmond (1983). They used a global measure of self-concept, the Piers-Harris Children's Self-Concept Scale, to assess the self-concept of LD adolescents. In the first part of the study, the sample included 159 LD students; 34 students in grades six to eight, and 125 students in grades nine to twelve. These students were defined as learning disabled on the basis of a discrepancy between reading achievement and WISC-R Full Scale IQ scores. The results indicated that the LD students in middle school (N=34) and high school students (N=125) did not score significantly lower on the Piers-Harris measure of self-concept than the students in the Piers-Harris normative sample (N=1183). In a second part of this study, Silverman and Zigmond compared the Piers Harris self-concept scores of four groups, Urban LD (N=10), Suburban LD (N=10), Rural LD (N=10), and Nondisabled (N=10) with the normative data of the Piers Harris norm group. The authors made the following conclusive statements about the self-concept of LD students: "Taken together, the studies clearly indicate no empirical support for the assumption that adolescents who are learning disabled see themselves as incompetent." (Silverman and Zigmond, 1983, p. 480). They also concluded that achievement was not an important variable in defining one's worth.

One criticism of this study is that the sample size in all four groups was too small to make any generalization about LD adolescents in general. Based other recent research findings (Chapman,1988 and Cooley & Ayres, 1988), it seems certain that their utilization of a general measure of self-concept had resulted

in invalid conclusions about both the self-concept of learning disabled adolescents, and about the factors which contribute to the development of positive self concept.

The second study utilizing a general measure of self concept that will be discussed here is a study by Cooley and Ayres (1988). The findings of their study contradict the findings of the Silverman and Zigmond (1983) study. The study by Cooley and Ayres was designed to determine which of the six subscales of the Piers Harris Children's Self-Concept best discriminated between the self-concepts of normal and LD students. The subjects included 47 nonhandicapped students (mean age 11.5 years) and 46 LD students (mean age=12.3 years). The Piers Harris Scale provides six subscale scores, plus a full scale total score which is a combined score for all six subtests. Two of these subtests (Behavior and Intellectual & School Status) measure more academic aspects of self-concept. The remaining four subtests (Appearance, Anxiety, Popularity, and Happiness) assess more global aspects of self-concept. The results of the Cooley and Ayres study indicated that LD students had significantly lower self-concept scores than their nonhandicapped peers, and "...statistical analysis indicated that this difference was due largely to the academic component within the Piers-Harris measure. When this measure was removed, the self-concept differences disappeared." (Cooley and Ayres,1988, p. 177).

The results of the statistical analysis in the study by Cooley and Ayres explained why there are often inconsistent results among studies which attempt to assess the self-concept of LD students. It

also offered an explanation for the differences between the self-concept of LD students and their nonhandicapped peers (or lack of difference, as in the Silverman & Zigmond, 1983). That is, global measures of self-concept include a small number of questions which related to academic self-perception, and therefore may not contribute enough to the full scale score to differentiate between groups on a full scale score comparison. Further support for this assertion concerning the ineffectiveness of global measures of self-concept is offered by a recent review of 42 studies undertaken by Chapman.

Chapman (1988) reviewed 21 studies which used a general or global measure, and 21 studies which used an academic measure (PASS), for determining the self-concept of Learning Disabled and nonhandicapped students. The results of Chapman's review indicated that the academic measure of self-concept consistently discriminated LD students from their nonhandicapped peers, showing that LD students obtained a mean score on the PASS at the 18th percentile. It is essential to note that in Chapman's extensive review of the self-concept of LD students, only three of the 42 studies reviewed attempted to assess the self-concept of LD adolescents. Most were concerned with assessing younger LD students.

In summary, the study by Cooley and Ayres (1988), and Chapman's review of studies examining the self-concept of LD students, both indicated that an academic measure of self-concept provides a more accurate description of the LD self-concept than does a general or

global measure of self-concept. The importance of utilizing an academic as opposed to a general measure of self-concept has been highlighted for a variety of reasons. Measures of academic self-concept exhibit sound psychometric characteristics, such as discriminant validity, which general measures of self-concept have failed to provide. The PASS discriminated between the self-concepts of LD students and non-LD children, whereas general measures have not consistently demonstrated any significant discrepancy between these groups. Because the PASS taps more specific aspects of school-related perceptions, it is more sensitive to areas where learning disabled students are apt to develop negative self-perceptions, particularly in the domains of reading, math and penmanship/neatness. LD children are likely to maintain positive self-concepts in areas other than academic (such as appearance and happiness) because their disability is related directly to academic achievement, and often allows them to appear normal in most other areas of achievement, such as drama, art, music and athletics.

Self-Concept and Age/Grade Differences

Due to a variety of factors, such as imprecise definition of LD students, and focus on perception and cognitive abilities rather than emotional and motivational factors, an understanding of the pervasive and complex emotional problems of LD students, which are thought to be developmental, has not been investigated (Bender, 1987). Abrams has also stressed the importance of

considering the affective concomitants of the learning disabilities:

> We must also not fail to recognize the developmental nature of learning disabilities. Indeed, learning disabilities must be viewed as a problem not only of school years, but of early childhood and continuing into adult life. Finally, we must always be alert to the interaction of organic and functional factors. In our zeal to develop more efficient instructional strategies we cannot neglect the affective considerations, the emotional concomitants to the learning disability which make the individual nonreceptive to the learning process.
>
> (Abrams,1986, p.193)

Chapman and Wilkinson (1988) designed a unique study, the major focus of which was to examine the relationship between the social-emotional and achievement characteristics of LD and non-LD students. It is one of the few studies which has extended over a five year time period (from intermediate school through junior high to high school) that has examined the development of social/emotional characteristics of LD and nonhandicapped students. One of the major goals of this study was to determine the effects of continued failure on the already negative self-concept of LD students. It was predicted that LD students would experience the most debilitating effects of failure during the adolescence years, which would be indicated by lower self-concept scores as measured by the PASS. The results of the study did not confirm this prediction, however, as the LD students' perception of self-worth actually increased slightly during the junior high and high school time period. (It is important to note that even though the self-concept scores of the LD students improved slightly in this study, they were still significantly and

consistently lower than the self-concept raw scores of their nonhandicapped peers).

Chapman and Wilkinson attributed the slight increase in self-concept to a variety of factors; the first may have been an artifact of the test instrument itself. The PASS may not be sensitive to the measurement of scores which are below the 30th percentile. Other factors which may have also contributed to the slight increase in self-concept scores may have been the characteristics of the students selected for the study. The students selected for the Chapman and Wilkinson (1988) study were never labelled LD, and received no remedial assistance while they were in intermediate school. (And therefore may have avoided the negative self-concepts frequently associated with labelling.) When the group of 73 LD students reached secondary school, only the 30 more severely handicapped students received remedial assistance for the first time. (Those LD students who were chosen to receive remedial assistance had exhibited lower achievement levels and lower levels of self-concept than the other 43 LD students). The results of the study indicated that remedial assistance provided at the secondary school level did help the 30 LD students to improve in both self-concept and achievement, and enabled them to improve and achieve at a level similar to that of their non-remedial LD peers.

Due to the specific characteristics of the LD sample just described, Chapman and Wilkinson suggested that the results of the study should be interpreted cautiously, as the results could be the direct result of sample characteristics or an artifact of the

measurement device. Yet, even in view of this suggestion for cautious interpretation of the study findings, the findings of the study show are encouraging in that they show that self-concept and achievement can improve with intervention, even at the secondary school level, with students who are fairly severely learning disabled.

Intrinsic Motivation and the Exceptional Student

The relationship between self-concept and motivation is an important one. Self-concept, through its effect on motivation, is considered to have a major influence on achievement (Boersma and Chapman, in press). Ames (1987) emphasized that an understanding of how students view themselves and the academic task (and how they perceive their ability to succeed) are important aspects in the study of motivation. Ellis (1986) has also indicated that student beliefs about success and failure on academic tasks have significantly influenced the learning, generalization and transfer of strategies. Three recent publications indicate that academic self-concept (perceptions of success or failure on school-related tasks) also influences quality of task involvement, maintenance and continued motivation (Boersma and Chapman, in press; Ames, 1987; Ellis, 1986). As Chapman stated, "although the issue of causal preponderance between self-concept and achievement has not been settled (Bryne, 1984), most educators and researchers agree that the relationship is at least reciprocal" (Chapman,1988, p. 2).

All of these recent studies mentioned conclude that there is a relationship between self-concept and motivation which can either

enhance or impede the learning process. A further understanding of motivation, in particular intrinsic motivation (which is the satisfaction one gains from engaging in and mastering a task for its own sake) is one of the major goals of education (Mulcahy et. al, 1986). The development of positive self-concept and intrinsically motivated behavior should be the general goal of education, for all students, including LD and other special needs students.

Harter (1981) developed a measure which assesses intrinsic to extrinsic motivation orientation in the classroom environment. The concept of intrinsic motivation is derived from White's (1959) theory of effectance motivation. His concept of motivation was that organisms engage in attempts to master their environment through learning, and that mastery of the environment is an intrinsically pleasurable and satisfying experience. Harter extended White's theory of effectance motivation to the classroom situation, and operationalized the concept by developing a questionnaire which measures the various components of intrinsic and extrinsic motivation. The questionnaire requires the student to choose "what kind of kid he is like" by deciding whether statements and descriptions are sort of true or really true for him/her. The test measures five components of motivation: Preference for Challenge, Curiosity Interest, Independent Mastery, Independent Judgment, and Internal Criteria. (For a brief description of each subscale refer to Appendix 1). Harter viewed intrinsic/extrinsic motivation as a multi-dimensional rather than a global construct, which was thought to be developmental in nature. She stated that when interpreting the

results of the scale, it would be inappropriate to combine the subscales to form a total score (or full scale score). This would be inappropriate because it would mask both individual differences and the distinction between the different subscales. Harter found through factor analysis that three of the subscales (Preference for Challenge, Interest/Curiosity and Independent Mastery) measure motivational components, whereas the other two subscales (Independent Judgment and Internal Criteria) measure informational components (Harter,1981).

Harter's (1981) normative data consisted of 3,000 students in Colorado, Connecticut, New York and California, and the study was considered to be normed on an average school population. The results of her study demonstrated a developmental shift in motivation orientation from intrinsic to extrinsic as students progress in school from grades three to nine. A distinct decrease in intrinsic motivation was observed to occur between the third and sixth grade level, and during the grades seven to nine period the student subjects became more extrinsically motivated on the three subscales, Preference for Challenge, Curiosity/Interest, and Independent Mastery. The opposite trend was observed, however, for those subscales which assessed the two informational components: Independent Judgment and Internal Criteria. This finding is not surprising, as average (or normal) students become more able to independently determine success or failure in school as they progress to higher grades.

A study designed by Harter (1981) assessed the motivation

orientation (intrinsic/extrinsic) of 4th, 5th and 6th grade normal students who attended either an open school or a traditional school. It was predicted that those students who attended the open school would be more intrinsically motivated than those students who attended a more traditional school. The results of the study confirmed Harter's prediction as the motivation scores were significantly different across all five subtests at $p>.001$.

In summary, motivation appears to be influenced by students' perception of self-worth, which either impedes or enhances motivation to learn. The development of intrinsic motivation is a primary goal for all students. Harter (1981) developed a scale which determined the motivation orientation of students in the classroom. It was confirmed that classroom instructional procedures such as those found in the open class room promoted the development of intrinsic motivation. The development of intrinsic motivation in the classroom depends on the utilization of a variety of instructional considerations, such as noncompetitive classroom environments and instructional activities that are based on student interest and choice (Ellis, 1986). Unfortunately, LD students have usually received instructional and motivational programs which undermine the development of autonomy and intrinsic motivation. Therefore, a consideration of variables that produce confident, self-motivated students is warranted and should be emphasized in remedial programs for special education students.

Motivation, Affect and Its Relationship to Achievement

The importance of motivation to achievement has been outlined.

Another very important consideration is concerned student perceptions. Children's perceptions influence performance in learning situations; particularly those perceptions that are formulated about ability level and success or failure in school. Dweck (1986) stated that a dramatic change has taken place in the last ten to fifteen years in the study of motivation. The current emphasis is "...on cognitive mediators, that is, on how children construe the situation, interpret events in the situation, and process information about the situation" (Dweck, 1986, p. 1040).

Dweck (in the above quoted article) described two patterns of achievement behavior which are directly related to a student's theory of intelligence or ability; a maladaptive pattern and an adaptive pattern. As students progress in school they gradually formulate beliefs about intelligence. Students who exhibit a maladaptive motivation pattern view intelligence as a fixed entity. If they experience repeated failure, they attribute failure to a lack of intelligence. Students who perceive themselves as having low intelligence also demonstrate low task persistence, which increases likelihood of failure, and thus contributes to the development of a "helpless" attitude towards learning. Students who exhibit a maladaptive pattern of motivation also avoid challenge, exhibit negative self-cognitions and are anxious, all of which impede the learning process. In contrast, students who exhibit an adaptive pattern of motivation demonstrate high levels of persistence, are challenge seeking and mastery-oriented. These students develop a positive theory of intelligence; that is, they believe that

intelligence is changeable and directly related to high task persistence. In order to encourage a more adaptive view of intelligence, Dweck (1986) suggested that classroom environments should foster the development of learning rather than performance goals. Performance goals tend to orient the student towards good grades and positive judgments about competence from the teacher or peers, rather than on learning goals which focus on increasing competence.

The importance of the development of adaptive motivational patterns in students is thought to be critical to future cognitive development, even for students who are very bright. It therefore is even more important for LD students, who are usually failure prone and have developed passive, helpless behavior patterns, similar to the behavior patterns described by Kay :

> 1. These children do not ask questions.
> 2. They resist making choices.
> 3. They are uncomfortable when given compliments.
> 4. Their eye contact is poor.
> 5. They are not risk takers.
> 6. They fail to use effective study skills.
> 7. They do not use self-monitoring techniques and are usually unaware of having used any strategies at all when they complete tasks successfully. (Kay,1986, p. 36)

It is important to note that individual differences occur among children in how they develop perceptions about ability and failure. And while these different perceptions have profound effects on achievement, they are not thought to be a product of intellectual ability. "Although children displaying the different (motivational)

patterns do not differ in intellectual ability, these patterns can have profound effects on cognitive performance." (Dweck,1986, p.1041 underlining for emphasis added). Dweck also found that intrinsic motivation is undermined when emphasis is placed on performance goals rather than learning goals. If students are more concerned about competence evaluations rather than for learning itself, then these concerns will probably overwhelm intrinsic interest in the task.

In summary, students' theories of intelligence, type of goals (performance or learning), task persistence and confidence levels are important variables which influence performance in the classroom. LD students are likely to be characterized by a set of variables that are representative of a maladaptive pattern of motivation. It is thought by many educators that classroom structure, reward structures, and type of teacher feedback all influence students' self-concept and motivational pattern.

Developmental Differences and LD Adolescents' Affective Characteristics

Licht and Kistner (1986) described the differences between young children and adult concepts of intelligence. Research indicated that school-aged children prior to age seven perceive intelligence as a malleable trait which is directly related to the amount of effort expended in the learning situation. Prior to age seven children do not use social comparisons as a basis for inferring high or low ability. A student usually perceives himself as demonstrating low ability if he cannot master a task which most of his peers can easily

master. It is thought that children's beliefs about intelligence are not formulated until age 10 year or older. Licht and Kistner noted:

> . . . it is not until age 10 that the majority of children begin to view intelligence as a capacity that limits the utility of their efforts (Nicholls, 1978; Nicholls & Miller, 1984; Rholes, Blackwell, Jordan & Walters, 1980). Even at age 10, the concept of intelligence as a fixed capacity is not fully developed; it may not become fully developed until age 13 or even later (Harari & Covington, 1981; Nicholls, 1978).
>
> (Licht and Kistner,1986, p. 231).

From this developmental perspective, it is reasonable to assume that children's perceptions of academic failure should become most debilitating during adolescence. Licht and Kistner (1986) concluded:

> However, by age 10 and beyond, children's growing belief that intelligence is a stable capacity makes the implications of being low in ability more serious. Therefore, they should be more debilitated when faced with information that reflects negatively on their ability. (p. 231)

Pertinent to this study are the cognitive mediators (self-perceptions about performance) and their relationship to motivation and achievement, which are thought to develop during the junior high period. The effects failures and social comparisons between peers during junior high school years are accentuated. Adolescents are extremely vulnerable to the effects of failure as

Schumaker, Deschler and Ellis (1986) stated:

> As learning disabled children enter the junior and senior high school environments, they encounter many demands that often serve to underscore the reality of their disabilities. A large gap between academic expectations and student performance often exists. The problems of older LD students are exacerbated further by the broad array of non-academic expectations that are present in such areas as personal and social development, vocational competence, and successful post-school adjustment. (p. 329)

Adults view intelligence as a fixed, stable entity whereas young children, prior to age seven, view intelligence as changeable and directly related to effort expended. Children gradually develop their perceptions of intelligence as a result of social comparisons and ease of task mastery. Success on difficult tasks, on which most of one's peers are unable to succeed, is indicative of high ability; whereas failure to succeed on easy tasks, on which most of one's peers are successful, is indicative of low ability. It is thought that during the ages of ten to thirteen, students become aware of their academic deficiencies and that the most debilitating effects of failure are likely to occur during the adolescent years.

Affect and Reading Achievement

Affect is viewed as being an important contributor to reading achievement, because it is thought to provide the will or desire to learn to read and to gain pleasure from reading. Positive affect is also viewed as contributing significantly to the prevention and correction of reading problems (Alexander and Heatherington, 1988).

It is interesting to note that Alexander and Heatherington stress the development of positive affective variables when developing remedial programs for disabled readers. They suggest that instructional activities which would enhance the affective dimension of reading would focus on student interests, the development of intrinsic motivation, curiosity, and exploration (Alexander and Heatherington, 1986). Schumaker, Deshler and Ellis (1986) also emphasized the importance of considering student interest, choice and self-motivating procedures when developing remedial programs for LD adolescents. Alexander and Heatherington further observe the lack of emphasis in considering the affective variables that are vital to the development of reading skills for both good and poor readers. The authors aptly stated:

> Teachers need to be aware of corrective and remedial readers who feel negative about reading, exhibit little motivation to read, have few reading interests, or possess a negative concept of themselves as readers. Instructional activities must be planned for these students that focus on the affective dimension of reading.
>
> (Alexander & Heatherington,1988, p. 166)

Oka and Paris (in press) designed a study which assessed the cognitive and motivational characteristics in overachieving and underachieving grade three and grade five students. The sample consisted of over 600 students, 332 in the third grade and 337 in the fifth grade. All students were in regular classrooms within a metropolitan school district. From this sample of students; two groups of students were identified as over and underachievers on the

basis of a discrepancy between verbal aptitude and current reading achievement level. Verbal aptitude was assessed by the Verbal Subscale of the Cognitive Ability Test (1984) and reading achievement was assessed by the Comprehension Subtest of the Gates-MacGinite Reading Test (MacGinite,1978). The three achievement groupings were formed from the percentile scores of the Gates MacGinite reading test; low achievers were those students who scored at or below the 33rd percentile, and overachievers were those students who scored at or above the 67th percentile. A third group of students were identified as appropriate achievers (those students that scored between the 33rd and 67th percentile). A major goal of this study was to determine the cognitive and motivational characteristics of the three achievement groupings. It was also a goal of the study to determine if developmental differences in cognitive, motivational and affective variables would develop among the three achievement groupings between grades three and five.

A stepwise multiple regression was performed to determine which cognitive and motivational variables were the best predictors of reading achievement across achievement groupings and grade level. The authors noted that the profile of the underachievers closely resembles that of most LD students. Oka and Paris (in press) stated: "For these children, verbal aptitude predicts higher reading performance than they manage to attain. With an IQ equivalent of 105 and reading achievement substantially below expected levels, these children most closely resemble the typical learning disabled

child." (p. 26). The underachieving grade three students were characterized by lower levels of performance on all the cognitive and motivational measures; they had lower comprehension and had acquired less knowledge about strategy usage; they typically demonstrated lower self-concept and an extrinsic motivation orientation. For underachievers at the third grade level, motivation variables did not predict reading achievement level, but by grade five, reading achievement was predicted by cognitive self-perceptions, comprehension monitoring and strategy use.

The single best predictor of reading achievement for fifth grade overachievers was positive cognitive self-perceptions. A comparison between the profiles of underachievers and overachievers indicated that "these children obtained higher scores on measures of comprehension skills, use of reading strategies, attitudes toward reading, cognitive self-perceptions and intrinsic motivation" (Oka and Paris, in press, p. 28). Appropriate achievers' performance on the cognitive and motivational measures fell in intermediate range (below overachievers and higher than overachievers). The reading performance of appropriate achievers was significantly related to strategy use, reading awareness and cognitive self-perceptions. The results of this study indicated that between the third and fifth grade a developmental shift occurred as the significant predictors of reading achievement changed from the cognitive to the motivational variables. Predictors of reading performance at the grade three level were knowledge and use of comprehension strategies, whereas by grade five motivation

variables begin to emerge as significant predictors of reading achievement.

The emergence of motivation, and cognitive self-perceptions as significant predictors of reading achievement at the grade five level indicated that as children progress in school, instructional influences, such as teacher feedback, competitive versus cooperative classroom structure, and programs based on student interest, choice and autonomy probably promote the development and differentiation between achievement profiles of underachievers, overachievers and appropriate achievers.

A major difference between cognitive and motivational factors was found between over and underachievers. Underachievers demonstrated less knowledge of reading awareness, did not employ the use of cognitive strategies, displayed negative perceptions of academic competence, and displayed an extrinsic motivation orientation towards learning. In direct contrast, overachievers scored consistently higher on all cognitive and motivational measures. It is important to note that for this achievement grouping that the single best predictor of reading achievement was a high level of perceived competence.

Oka and Paris describe the relationship among self-worth, motivation, and the adaptive coping mechanism of the underachiever. In the development of remedial programs for LD students, or underachievers, it is necessary to consider the negative perceptions of self-worth these students have, and its effect on motivation. Oka and Paris (in press) stated, "Our view is that children will

pursue activities in which self-worth is confirmed to a greater extent than it is threatened" (p. 38). The authors concluded that in order to preserve feelings of self-worth, underachievers are likely to devalue specific areas where failure is likely to occur, such as reading. Therefore the LD student is not likely to persist or demonstrate a high level of motivation on reading activities which are only likely to result in low perceptions of self-worth. The study by Oka and Paris provides impetus for future research. Their research indicates that "low motivation" may be an adaptive response of underachievers, and may be a means of preserving self-worth. They state, "...low motivation is an obstacle to enhanced achievement motivation and must be addressed before academic gains, particularly among LD children, may be expected" (Oka and Paris, in press, p. 41).

Future research should therefore focus on the several questions which remain unanswered regarding the development of specific components of self-worth, as well as the relationship of self worth to motivation. Positive measures of self worth and high levels of motivation appear to be important predictors of reading achievement for both appropriate and over achievers. It can be assumed that underachievers could benefit and improve performance if remedial programs focused on the development of these cognitive and affective factors.

Wong (1986) criticizes previous research in the area of learning disabilities which focused on determining significant differences between LD and non-LD students on some dependent measure. Wong

stated that the conclusions that are derived from these comparisons are often misleading and erroneous because it is likely that when one compares the performance of LD and non-LD on any dependent measure, significant differences will be found to occur in favor of the non-LD student. Wong (1986) suggested in order to gain a clearer understanding of learning disabilities, researchers should now begin to focus on interactional and programmatic research. The study just discussed by Oka and Paris is unique because it follows the recommendations by Wong (1986). The study views academic underachievement from a multidimensional and interactionist perspective, and program development which emerges from this research is likely to be more insightful.

In summary, self concept and motivation are important contributors to reading achievement. Several questions remain unanswered in the study of affective and motivation factors within the LD population and the relationship these factors have to achievement, particularly during the junior and high school years.

Chapter III

Statement of the Problem

Learning disabled adolescents exhibit a broad array of personality and behavior disorders which are thought to impede the learning process. Deci (1986) highlighted the importance of affective factors (emotional and motivational) as contributors or initial causes of learning disabilities. He stated, "...emotional and motivational variables are thought to be central to some (if not all) learning disabilities, either as initial causes or as factors that exacerbate problems that are based on neurological deficits" (Deci,1986, p. 587). Chapman (1988), in his extensive review of studies concerning self-concept of learning disabled students, highlights the importance of using an academic rather than a general measure of self-concept. In his review he found that only 3 of 42 studies involved learning disabled adolescents, and concluded that there were presently insufficient studies available to make any conclusive statements regarding the self-concept of LD adolescents. Self-concept is generally thought to influence achievement through motivation; that is low levels of academic self-concept are likely to result in low task persistence and low motivation (Chapman, 1988; Oka and Paris, in press). Chapman (1988) also suggested that future research should focus on the interaction of affective and motivational variables and their relationship to achievement.

The development of intrinsic motivation is thought to be a general goal of education (Deci,1986; Mulcahy et al.,1986). Several factors impede development of intrinsic motivation some of them

being: misused extrinsic reward systems, competitive classroom structures, ineffective teaching styles, and over focus on non-intellectual matters in learning (Deci,1986; Ellis,1986). Learning disabled students have been characterized as passive learners and as exhibiting a more extrinsic orientation towards learning. It is presumed that the passive learning style of the LD student has developed from the result of years of academic failure, particularly from the inability to learn to read. The most debilitating effects of failure and maladaptive motivation patterns are thought to occur during the adolescent years (Deshler and Ellis, 1986). The need to empirically analyze the affective components of LD adolescents is underscored by a paucity of studies examining the behavioral and personality characteristics of LD adolescents (Chapman,1988; Bender,1987).

Chapman and Wilkinson (1988) designed a study which examined the self-concept of LD adolescents longitudinally over the course of a five year time period. Because of the characteristics of the LD sample employed in the Wilkinson and Chapman (1988) study several important questions remain unanswered regarding the self-concept of LD adolescents. Future research is now required to determine the self-concept of more severely learning disabled adolescents. The study by Oka and Paris (in press) demonstrated the importance of analyzing the relationship and interaction between cognitive, affective and motivational variables as determinants of learning disabilities. From this study it was concluded that by grade five motivational and affective variables became significant predictors

of reading achievement. An implication for future research which arises from the Oka and Paris study would involve the analysis of cognitive and affective variables, and their relationship to reading achievement during the junior high school years (grades seven to nine).

In summary, several research questions remain unanswered regarding the self-concept of LD adolescents. It has also been suggested that affective and motivational variables are interactional processes which contribute significantly to reading achievement (Chapman, 1988). A major goal of this research is to examine the relationship between affect and reading achievement within severely LD adolescents utilizing an interactionist perspective.

Research Questions

1. Do LD adolescents exhibit an increase or decrease in self-concept over the course of the junior high years as measured by the Perception of Ability Scale for Students (PASS)?
2. What affective variables (self-concept, motivation, orientation) as measured by the Perception of Ability Scale for Students (Boersma and Chapman, in press) and the Scale of Intrinsic Versus Extrinsic Orientation (Harter, 1981) are the best predictors of reading achievement.

Chapter IV

Method

Sample

The sample was comprised of fifteen male and nine female severely learning disabled students. Most of these students had been receiving special education services within the Edmonton Public School system since about grade three, and had been identified as a special group of students who were unable to cope with or benefit from regular classroom placement and required special program modification within a segregated classroom environment. For a two month time period (May-June, 1988) the researcher was a substitute teacher for this particular group of students. The researcher taught them a modified health, social studies and science program. These students had different teachers for math, language arts, home economics, industrial arts, physical education and art. The researcher was an experienced teacher, having taught and developed remedial programs for learning disabled adolescents for seven years.

The students in this sample share similar characteristics to other students in special education classrooms for severely learning disabled adolescents. Generally, within these segregated classrooms, there exists a wide range of ability and achievement levels among the students. The background experiences and life histories of these students are typified by unusual and bizarre circumstances which range from juvenile delinquency to being the victims of sexual abuse. In sum, although the range of achievement

and ability within this sample is great, the LD students in this study are representative of an ecologically valid group of severely learning disabled students.

Generally, the total group of LD students in this sample have achieved average or above average levels of intelligence, as indicated by WISC-R full scale scores (given in Table 1). An analysis of Table 1 indicated that this particular group of LD students have attained higher scores on subtests of the WISC-R which assessed performance or nonverbal intelligence across all grade levels than on those subtests of the WISC-R which measured verbal skills. This is to be expected because as a total group they have attained relatively low scores on the informal reading inventory in areas of sight vocabulary and instructional reading comprehension grade level. Lower reading achievement levels have probably influenced and depressed the verbal scores of this group of severely LD students.

Table 1

WISC-R Scores for Grades 7, 8 & 9 LD Adolescents

		FullScale Score	Standard Deviation	Min. Value	Max. Value
Grade 7 n=9	Verbal	83	5.2	76	91
	Performance	98	19.2	71	123
	Full Scale	89	11.5	72	105
Grade 8 n=8	Verbal	92	7.8	80	106
	Performance	98	9.1	82	109
	Full Scale	96	7.4	85	104

(Table continues. . .)

(Table 1 continued . . .)

		FullScale Score	Standard Deviation	Min. Value	Max. Value
Grade 9	Verbal	91	9.8	79	105
n=6	Performance	106	8.8	95	120
	Full Scale	97	5.0	90	102
Total	Verbal	88	8.2	76	106
Group	Performance	100	14.1	71	123
n=15	Full Scale	94	9.2	72	105
Gender M	Verbal	88	8.9	76	106
n=14	Performance	106	10.7	84	123
	Full Scale	96	6.4	82	105
Gender F	Verbal	87	7.4	78	96
n=8	Performance	90	13.8	71	109
	Full Scale	90	11.7	72	104

(Note: WISC-R scores were available for only 23 of the 24 subjects)

An analysis of the Informal Reading Inventory Test Results (Burns & Roe), given in Table 2, indicated that within this sample of LD there is a wide range of achievement levels. The LD students' scores range from grade 1 to grade 7.5. The total group has an average instructional reading comprehension level at grade 4.6, which indicated that their reading achievement skills are well below actual or current grade level.

Table 2

Informal Reading Inventory Test Results (Burns & Roe) for Grades 7, 8 and 9 LD Adolescents

		Grade Score	S.D.	Min. Value	Max. Value
Grade 7 n=10	Sight Vocab.	3.2	1.5	1.0	7.0
	Reading Instructional Level	3.7	1.8	1.0	7.5
Grade 8 n=8	Sight Vocab.	4.1	1.6	3.0	7.0
	Reading Instructional Level	5.2	1.1	4.0	7.0
Grade 9 n=6	Sight Vocab.	4.3	1.6	3.0	7.0
	Reading Instructional Level	5.4	1.3	4.0	7.0
Total Group n=24	Sight Vocab.	3.8	1.6	1.0	7.0
	Reading Instructional Level	4.6	1.7	1.0	7.5
Gender M n=15	Sight Vocab.	3.6	1.7	1.0	7.0
	Reading Instructional Level	4.5	1.7	1.0	7.5
Gender F n=9	Sight Vocab.	4.1	1.5	3.0	7.0
	Reading Instructional Level	4.8	1.5	3.0	7.0

Procedure

The PASS and the Scale of Intrinsic Versus Extrinsic Motivation were administered by the researcher and a teacher's aide during regular classroom instructional time. The instructions were followed and read verbatim from the two manuals. For students experiencing difficulty reading the questions or following the instructions, the teacher's aide or the researcher was available to read the question out loud for the student. In some cases, for those students whose reading level was below grade three, the entire test was read to them. The Informal Reading Inventory was administered by the students regular language arts teacher.

Materials

The PASS by Boersma and Chapman (in press) was used to assess the academic self-concept of the subjects, and Scale of Intrinsic Versus Extrinsic Motivation by Harter (1981) was used to measure the motivation orientation of the subjects. An informal reading inventory by Burns and Roe (1981) measured the sight vocabulary and instructional reading comprehension level of these LD adolescents. A summary of the psychometric properties of these instruments will follow.

Perception of Ability Scale for Students

Boersma and Chapman (in press) developed a short objective questionnaire to assess both general and school related perceptions. Six factors were found on the test which are: Perception of General Ability, Perception of Arithmetic Ability, General School Satisfaction, Perception of Reading and Spelling Ability, Perception

of Penmanship and Neatness, and Confidence in Academic Abilities. Test/retest reliability of the scale is .834 for the full PASS, and subscale values ranged from .714 to .824, which indicate it is a stable instrument for assessment of students' self-perceptions. The external validity of the PASS is reflected in inter-relationships with various constructs and behaviors as follows:

1. No significant correlation at .05 level was found between PASS and the Piers-Harris Children's Self-Concept Scale. The correlations coefficients between the two tests Full and subscale scores ranged from -.029 to .078. The data indicates that these 2 scales of self-concept measure different domains. The PASS scale measures academic self-concept rather than general self-concept.
2. The PASS scale correlates moderately (.3 to .5) with several measures of school achievement including report card grades and WRAT scores.
3. Moderate correlations were found between the PASS scale and school achievement of New Zealand students.
4. No significant correlation was found between PASS and various measures of intelligence. For example, the correlations between PASS and WISC-R Verbal (r=.12), Performance (r=.13), and Full Scale (r=.03) IQ scores. The implications of this low correlation between intelligence and self-concept to the proposed intervention is that it underscores the importance of success experiences in school as being more of a determiner of self-concept than actual ability (Boersma and Chapman, 1985).
5. The PASS was also shown to demonstrate pre/post test changes

in self-concept of special education students following special class placement.

6. PASS scores correlated moderately with the following personality variables: Projected Academic Performance Scale (PAPS) (r = .560), IAR = I + scores (r = .416), IAR = I - scores (r=.-089), Intrinsic Orientation in the Classroom Scale (r=.56). California Test of Personality correlations from .48 to .43.

In summary the PASS appears to be a reliable and valid instrument which can be used to assess academic self-concept.

Scale of Intrinsic versus Extrinsic Orientation in the Classroom

Harter (1981) developed a self-report measure designed to assess intrinsic motivation towards learning. The theoretical base of the scale was derived from White's (1959) model of effectance motivation. White proposed that organisms strive to engage in mastery attempts and derive pleasure intrinsically from these mastery attempts. Harter further extended the theory by developing a questionnaire which would measure the extent to which children are motivated (intrinsically/extrinsically) to approach tasks in the classroom. Do they exhibit an intrinsic orientation (mastery, curiosity and preference for challenge) in contrast to a more extrinsic orientation towards learning as indicated by dependence on teacher approval or to acquire good grades? The measure consists of five dimensions of classroom learning which are characterized as having both an extrinsic and intrinsic motivational pole. For example, "learning motivated by curiosity versus learning in order to please the teacher" (Harter,1980, p. 301).

The question format of the scale was specifically designed to avoid having the student make socially acceptable responses. The format of the questions require the student to decide which kind of kid is most like him or her and then asked whether this is sort of true or really true for him or her. The effectiveness of this question format lies in the implication that half the kids in the world view themselves in one way whereas the other half view themselves in the opposite manner. It in fact legitimizes both sets of responses. Each item is scored on an ordinal scale of 1 to 4, where scores 3 and 4 indicate extrinsic orientation towards learning, and scores of 1 and 2 indicate intrinsic orientation.

The reliability of the scale was demonstrated across samples from New York, California and Colorado. The reliability coefficient ranged from 0.78 to 0.83 across the five subscales. The scales thus appear to be reliable and valid instruments for determining extrinsic/intrinsic orientation in the classroom.

Chapter V

Results

In order to develop an understanding of the relationship between the dependent variables (the twelve subtests on the PASS and Harter's Scale of Intrinsic versus Extrinsic Motivation) and the independent variables (sex and grade) a two way anova (sex by grade) for dependent variables was performed. The results from this statistical analysis indicated that there was no significant relationship (at the $p<.05$ level) between the independent variables (Sex and Grade) for the following dependent variables:

(on the PASS): General Ability, Arithmetic, School Satisfaction, Reading/Spelling, and Confidence

(on Harter's Motivation Scale): Curiosity Interest, Independent Mastery, Independent Judgment and Internal Criteria.

A significant difference ($p<.05$) was found among the independent variables and the following three dependent variables:

(on the PASS): Full Scale Score, Penmanship/Neatness

(on Harter's Motivation Scale): Preference for Challenge

(The significant results are summarized in Table 3.)

The Results of the Anova sex by grade for the dependent variables indicated that within this sample, male LD adolescents perceived themselves as below average on the penmanship/neatness subscale of the PASS, and this perception was significantly different from that of LD females. The results also indicated that LD males have significantly lower academic self-concept than LD females, as

indicated by the full scale score on the PASS. For this particular Table 3 group of students, most of the difference could be attributed to the below average scores of the grade nine male LD students. It was also found that male LD adolescents were significantly more intrinsically motivated than LD females on the subtest which measured Preference for Challenge.

Table 3

Two Way Anova Sex by Grade for Dependent Variables

Dependent Variable	Independent Variable	F-Ratio	Probability
PASS - Penmanship/ Neatness	Sex Male n=9	6.428	.021
PASS - Full Scale	Sex Male	7.377	.014
PASS - Full Scale	Grade Grade 9 n=6	5.647	.012
HARTER - Preference for Challenge	Sex Male n=9	4.756	.043
HARTER - Preference for Challenge	Sex by Grade	4.055	.035

Correlations Between Independent and Dependent Variables

A correlation matrix was generated (see Table 4) and those correlations which were significant at $p<.05$ are highlighted in bold print. The results indicated that perceptions of academic self-concept and motivation orientation did correlate significantly with the independent variables (sex, grade and reading achievement level). It is important to note that correlation between these dependent and independent variables does not imply causation of reading problems. Previous research has indicated that reading disability is not caused by one single factor, but that reading problems are likely to be the result of an interaction between variables, or the result of multiple causative forces (Alexander & Heatherington, 1988; Oka & Paris, in press).

The PASS subscale of Penmanship/Neatness correlated r=.417 with sex. This correlation suggested that in general, females scored higher on this measure than males. PASS General Ability and Arithmetic subscales correlated r=.439. Reading Comprehension as measured by the Burns and Row (1980) Informal Reading Inventory was significantly correlated r=.481 to the Reading/Spelling subscale of the PASS. PASS Reading/Spelling was significantly correlated r=.542 with the PASS Confidence subscale. The PASS Full Scale score was significantly correlated with the subscale scores of Arithmetic r=.420, of Reading/Spelling r=.505, of Penmanship/Neatness 4=.620 and of Confidence r=.570.

The only significant correlation between the PASS and the Harter (1980) measure of motivation orientation was School Satisfaction

with Preference for Challenge r=.510. No other significant correlations were found between these two tests. Harter's subtest Internal Criteria correlated positively with Grade (r=.446) and with Internal Mastery.

Table 4

Correlations among sex, gender, reading comprehension and affective variables

	GRADE	R.C.	G.A.	ARITH	S.S.	R/S	P/N	CO	P.F.S.	P.C.	C.I.	I.M.	I.J.	I.C.
SEX	.054	.323	.133	.323	.127	.137	.417	-.042	.408	.275	.124	.173	.151	.149
GRADE	1.000	.466	-.361	-.308	.032	.039	-.388	-.388	.502	.057	.245	.049	-.082	.446
R.C.		1.000	.055	.126	.222	.481	.002	.040	..055	-.058	.164	.196	-.105	.136
G.A.			1.000	.439	.083	-.145	.223	.050	.377	.151	.001	.239	.086	.029
ARITH				1.000	.183	.193	.234	.177	.420	-.011	-.209	.052	.170	.130
S.S.					1.000	.077	.076	.325	.355	.510	.097	.151	.240	.211
R/S						1.000	.020	.542	.505	.052	.161	.243	.038	-.054
P/N							1.000	-.053	.620	.208	.076	.009	.131	.293
CO								1.000	.570	.008	-.382	-.260	-.130	-.124
P.F.S									1.000	.298	.112	-.127	-.129	-.150
P/C										1.000	.241	.254	-.380	.354
C I											1.000	.238	.394	.193
I.M.												1.000	.161	.566
I.J.													1.000	.088
I.C.														1.000

R.C. :READING COMPREHENSION
G.A. :GENERAL ABILITY
S.S. :SCHOOL SATISFACTION
R/S:READING/SPELLING
P/N:PENMANSHIP/NEATNESS
CO :CONFIDENCE
P.F.S.:PASS FULL SCALE
P.C. :PREFERENCE FOR CHALLENGE
C.I. :CURIOSITY
I.M. :INTERNAL MASTERY
I.J. :INDEPENDENT JUDGEMENT
I.C. :INTERNAL CRITERIA

BOLD=p<.05

Scatter Plots

Scatter plots were used to examine the relationship among the twelve affective dependent variables and the three independent variables (sex, grade and instructional reading comprehension level). This method of analyzing the data in this study is appropriate for a number of reasons.

1. The size of the sample in this study limits the use of other statistical methods to determine the best predictors of reading achievement.
2. In order to gain insight into the learning problems of this heterogeneous (although ecologically representative) sample of LD adolescents, it seems appropriate that these students be examined from a single-subject perspective.

Scatter plots allow for a visual analysis of relationship among multiple variables which could not be ascertained from any other method of statistical analysis. Each student's performance can be viewed across all affective and motivational variables for the three independent measures. A stem and leaf analysis was used to select those affective and motivational subscales which demonstrated the widest range and variation in performance, which were then illustrated as scatter plots. The following subscales were chosen: PASS Reading/Spelling, PASS Confidence, PASS Arithmetic, PASS Penmanship/Neatness, PASS School Satisfaction, PASS Full Scale Score, as well as Harter's Curiosity and Internal Criteria Subscales, as these were found in the initial analyses repeated earlier to discriminate between groups.

Figure 1-PASS Reading/Spelling x Reading Comprehension

The scatterplot as shown in Figure 1 illustrates the relationship between Reading/Spelling on the PASS and the independent variables (sex, grade and instructional comprehension grade level). The PASS reading/spelling subscale consisted of items which required the student to determine positive or negative perceptions of reading and spelling ability. Two sample items from the reading/spelling subscale are: "I am a good reader" and "I find spelling hard" (Boersma & Chapman, in press, p. 11).

Descriptive classifications have been developed for the PASS by taking Full and subscale PASS mean scores and their respective errors of measurement (Boersma & Chapman, in press). For the reading/spelling subtest, the raw scores for each classification level are: strong: above 12; above average:11-12; average: 8-12; below average: 6-7; weak: 5 and below.

When interpreting the scatterplot, it is important to consider the following: the cluster and spread of values; the various subgroups; the shape of the distribution; and unexpectedly common or uncommon values (Erickson and Nosanchuk, 1977).

An analysis of Figure 1 indicated that a linear relationship could be observed between academic self-perceptions and instructional reading comprehension grade level. As reading comprehension increased in grade level, academic self-perceptions also increased. It was also observed from the data presented on Figure 1 that differences among the dependent and independent variables could not

be attributed to gender, as males and females were equally distributed across the independent and dependent variables.

Another important finding emerged from viewing Figure 1. When the subjects were plotted on the scattergram, it became obvious that there existed a wide range of reading achievement levels, and a wide range of perceptions of achievement on the reading/spelling subtest. Generally, the students demonstrated accurate self-perceptions of reading/spelling performance, which correlated significantly with actual instructional reading comprehension grade level ($p.<05$).

An interesting finding on this scatterplot was the unexpected performance of one male grade 7 student (who is indicated on Figure 1 by a bold arrow). He was included in this sample because he was previously identified as learning disabled and had not yet been mainstreamed into the regular classroom. His academic skills had improved sufficiently to allow him to be mainstreamed, but his academic self-perceptions remained below average. By analyzing individual profiles of performance, it becomes evident that within the group of learning disabled adolescents, it is necessary to consider the students individually and to view their performance from a multidimensional and interactionist perspective.

Figure 1
PASS-Reading/Spelling x Reading Comprehension

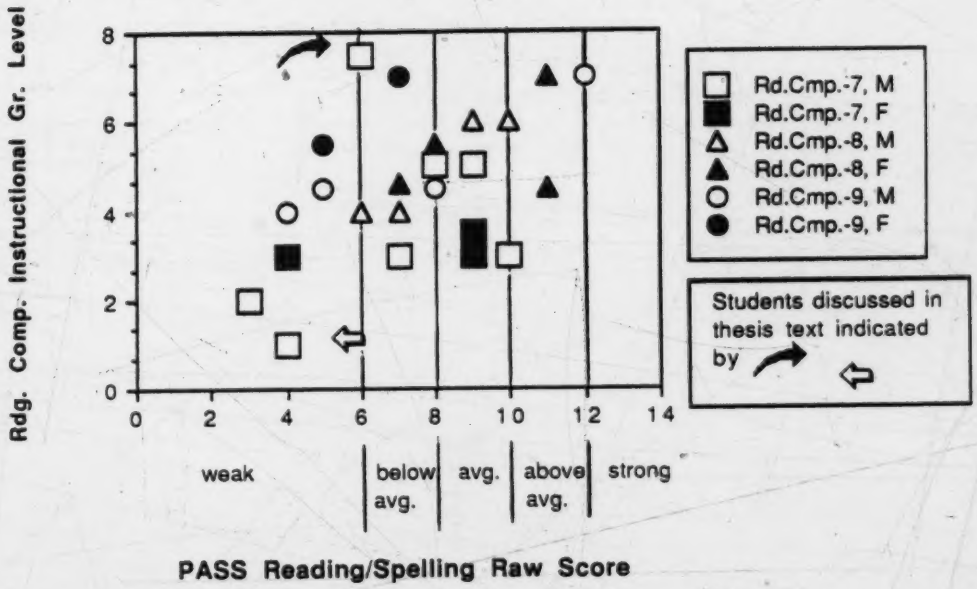


Figure 2 - PASS Confidence by Reading Comprehension

From viewing Figure 2, a small subgroup of LD adolescents can be delineated (they are indicated as group 1 on the scattergram). This subgroup of LD adolescents are classified as below average on the confidence subscale of the PASS. This subscale measured the students' confidence in their academic abilities. Some examples from items of this subscale are: "I always understand everything I read" and "I am a smart kid" (Boersma & Chapman, in press, p. 12). The students within this subgroup cannot be differentiated from the whole group of LD on the basis of gender. Another subgroup of LD adolescents can be identified on the scattergram as group 2. The

students within this subgroup had exhibited below average levels of confidence despite having achieved relatively high instructional reading comprehension grade levels. This underscored the importance for considering the development of confidence in school related tasks in remedial programs for LD adolescents.

The remaining group of 14 students achieved average or above average levels of confidence even though they have not demonstrated higher levels of reading achievement. It may be that students in this group have developed skills in other areas or domains which have helped them retain average or above average levels of confidence. A final observation of Figure 2 illustrated that five out of six grade nine LD adolescents had below average levels of confidence.

Figure 2
PASS-Confidence x Reading Comprehension

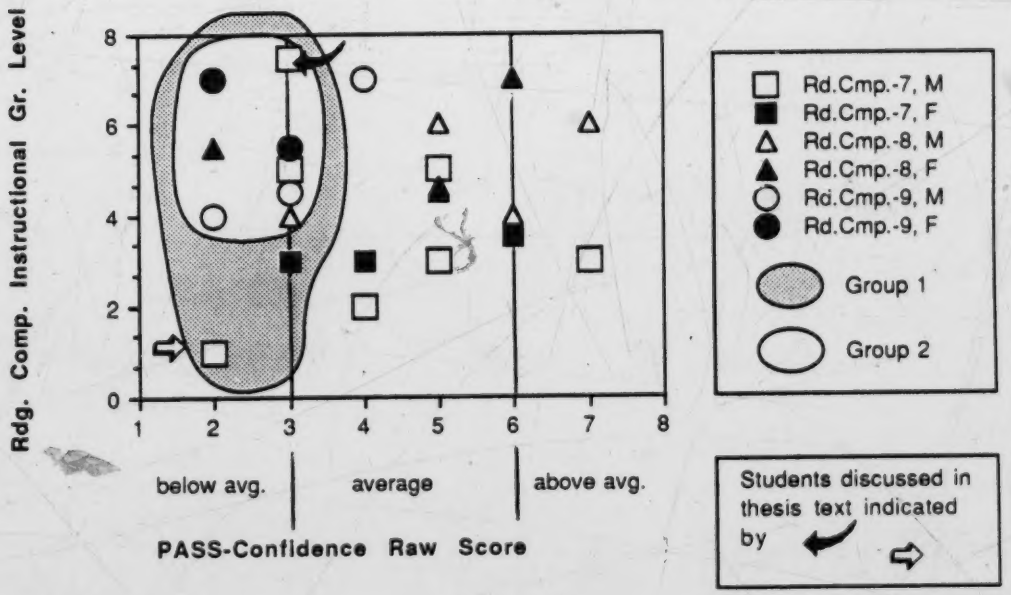


Figure 3 - Arithmetic x Reading Comprehension

In Figure 3 the scattergram illustrates the relationship between perceptions of ability in arithmetic, and instructional comprehension level for gender and current grade level. The arithmetic subscale is composed of statements such as "I am good at arithmetic," and "I have difficulty getting my arithmetic finished on time" (Boersma & Chapman, in press, p. 11). From viewing the scattergram it appears that there is no relationship between reading comprehension and perceptions of arithmetic ability. This result is to be expected, and provides support for the idea that academic self-concept is developed from performance results in specific subject areas, rather than existing as a single global entity.

On the scattergram in Figure 3 two male LD students have been indicated by white and black arrows. It is interesting to note that their perceptions of ability in Arithmetic differ greatly from their perceptions of ability in the subject areas of reading/spelling (they are also identified by arrows on Figures 1 and 2). On the reading/spelling subscale their classification was below average whereas on the arithmetic subscale their classification was above average.

Figure 3
PASS-Arithmetic x Reading Comprehension

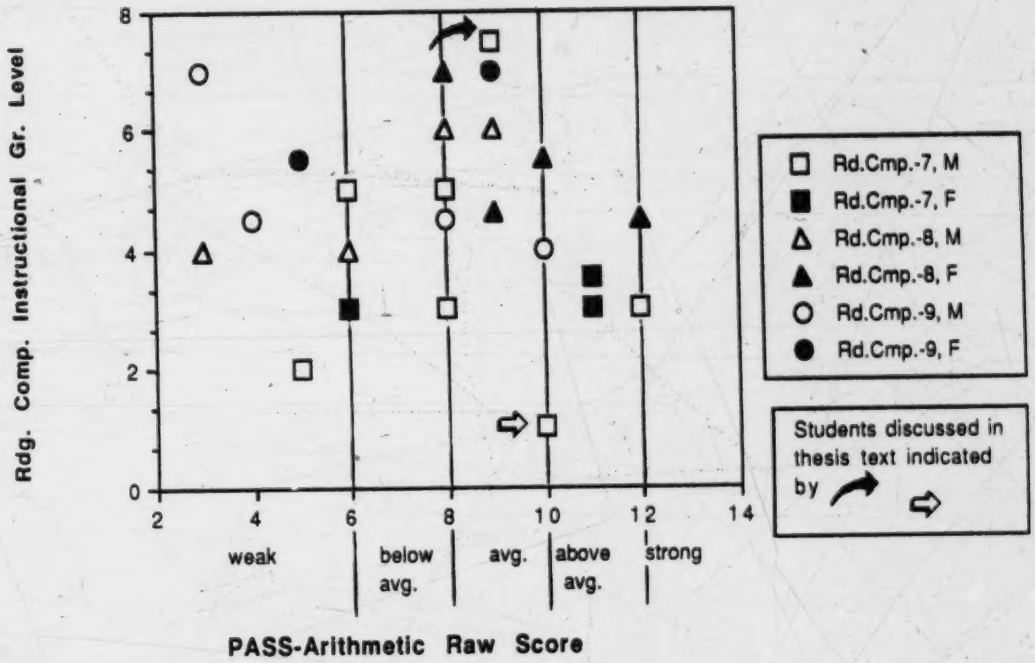


Figure 4 - PASS Penmanship/Neatness by Reading Comprehension

The PASS subscale, Penmanship and Neatness, consisted of items which relate to neatness of written work. An example of two items from this subscale are: "I am good at printing," and "My school work is usually untidy" (Boersma & Chapman, in press, p. 11). From observing the scattergram it is clear that the female LD students had average or above average self-concept perceptions on the penmanship/neatness subscale. Male LD adolescents had achieved below average or weak perceptions on this subscale. It is interesting to note the perceptions of penmanship and neatness of

the two male learning disabled students, whose instructional reading comprehension grade scores are at the extreme end of the range scores of the group (below grade 2 and grade 7.5). These two students differ greatly in their self-perceptions across many subscales of the PASS, which raises the question of how these self-perceptions might have developed. These two subjects had demonstrated below average self-perceptions of ability on the reading/spelling and the confidence subscales. Both of these students had higher self-perceptions of ability on the arithmetic and penmanship/neatness subscales.

The grade seven student (indicated by the bold arrow) whose instructional reading level is at the 7.5 grade level, demonstrated below average perceptions of reading and spelling ability, and exhibited low confidence. He is a metis student who lacks social skills, but has the potential to learn, and is confident in the areas of penmanship/neatness and arithmetic. It is likely that this student has received more positive feedback for his performance in both arithmetic and neatness of written work, resulting in positive self-confidence in these areas.

The second student (indicated by the white arrow) had achieved average performance on the WISC-R, but a severe severe auditory short term memory deficit was indicated by the Digit-Span subtest. He has shown little progress in reading, and has developed very negative perceptions of his reading and spelling abilities. It is interesting to note that he perceived his arithmetic and penmanship abilities more positively. Classroom observations indicate that he

enjoyed keeping the classroom neat and tidy, and showed an interest (as well as a high level of ability) in art. He participated in an individual arithmetic program which did not emphasize his deficits in learning, and allowed him to proceed at a slower pace. From viewing the scores of these two students across the various subscales, it becomes evident that within the total group of LD students, there is a wide range of self-perceptions of ability.

These self perceptions interact with cognitive abilities, instructional methods, and current perceptions of self-worth. The analysis of these two LD adolescents' performance highlights the importance of viewing the LD adolescent from a multi-dimensional perspective.

Figure 4
PASS-Pen./Neat. x Reading Comp.

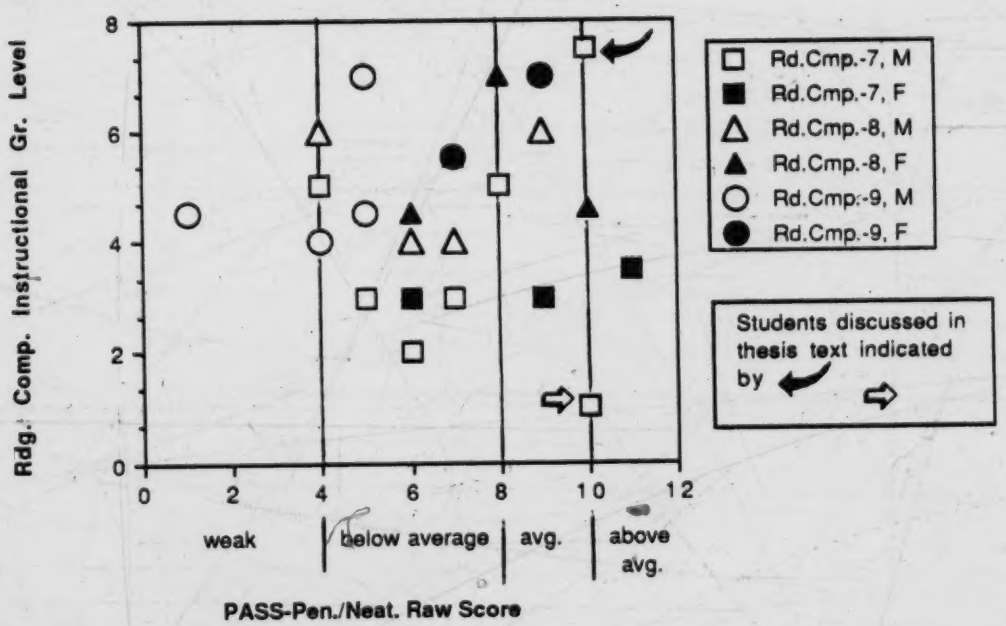


Figure 5 - School Satisfaction by Reading Comprehension

This subscale measured the LD students' general satisfaction with school. Two of the items on the subscale are: "I like going to school" and "I like answering questions" (Boersma & Chapman, in press, p. 11). When viewing the scattergram, a cluster of students emerged (indicated as group 1) who have developed a negative and weak general dissatisfaction with school. The majority of students within this cluster are male, and after teaching this particular group of students, the researcher can affirm that they are at "high risk" for dropping out of school. A second cluster of students (indicated as group 2) have also developed a general dissatisfaction with school, as indicated by their below average classification on the school satisfaction subscale.

The two extreme LD males are identified on the scattergram by dark and light arrows. Both of these students have indicated a very strong dissatisfaction with school, as their raw scores are well below the weak level. Analysis of their performance across the various subscales indicated that an effective remedial program might focus on the development of positive affective and motivational variables. It is also important to note that another subgroup of students (indicated on the graph as group 3) were generally satisfied with school. It does not appear from an analysis of the scattergram that instructional reading comprehension grade level is related to general school satisfaction for any of the three groups.

Figure 5

PASS-School Satisfaction x Reading Comp.

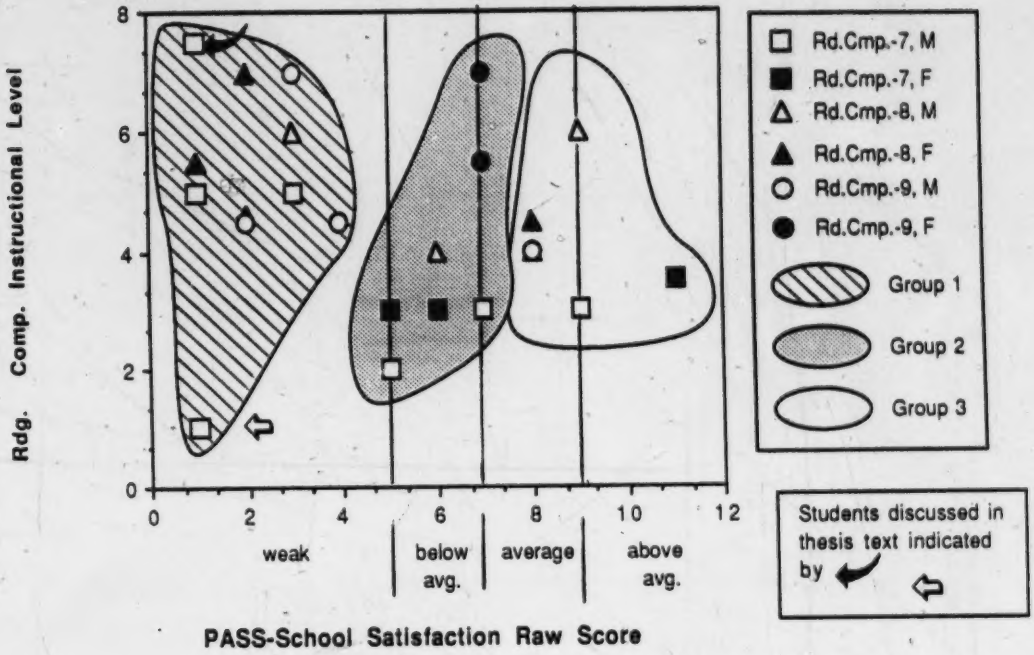


Figure 6 - PASS Full Scale x Reading Comprehension

The PASS full scale raw score is a composite score of the six subscales and reflects a general measure of academic self-concept. When viewing the scattergram, the largest cluster of LD students (indicated as group 1) have attained below average levels of academic self-concept. A smaller subgroup within this large cluster (identified as group 2) have weak academic self-concepts . This group is almost completely comprised of male LD adolescents.

A third subgroup of LD students (identified as group 3) have attained average or above average full scale scores on the PASS. An

analysis of this group indicated that it is comprised of mostly female LD adolescents.

Figure 6
PASS-Full Scale x Reading Comp.

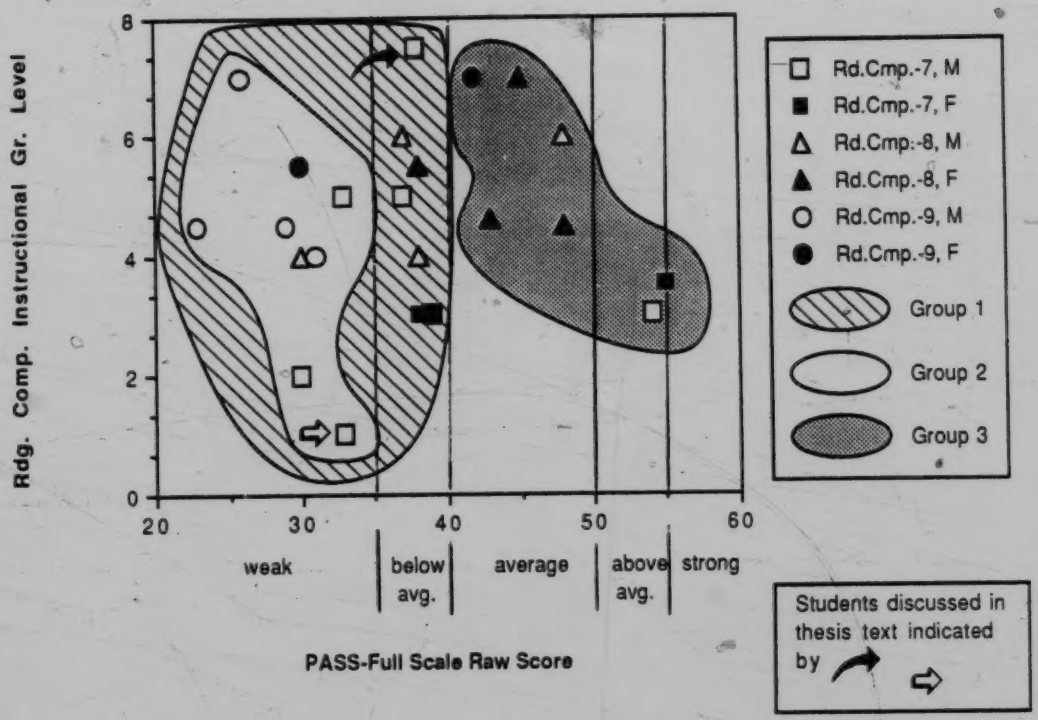


Figure 7 - Motivation Orientation (Curiosity) x Reading Comprehension

The curiosity subscale of Harter's (1980) test of motivation orientation assessed the degree to which a student's learning is influenced intrinsically or extrinsically. If a student is motivated to learn in order to gain approval from his/her teacher or to get good

grades, and generally is dependent on his teacher during the learning process, this is described as an extrinsic orientation towards learning (Harter, 1980). A student would be described on this subscale as having an intrinsic orientation towards learning if the student was motivated by his own innate curiosity. Harter described the intrinsic and extrinsic range on the Curiosity subscale in the following manner:

Intrinsic Pole	vs. Extrinsic Pole
Curiosity/Interest (Does the child work to satisfy his/her own curiosity	Pleasing the Teacher/Getting Grades (Does the child do schoolwork in order to satisfy the teacher, to obtain marks and grades

(Harter,1980, p.1).

An analysis of the scattergram indicated that two major subgroups could be identified within the total group of LD students on the basis of their motivation orientation towards learning (intrinsic versus extrinsic). One subgroup of students (indicated as group 1 on the scattergram) were identified as having a more extrinsic motivation towards learning. The other subgroup (indicated as group 2) were more intrinsically motivated towards learning. The characteristics of both subgroups just described are not differentiated by gender, grade level, or instructional reading comprehension level.

Figure 7
Motivation Orientation (Cur.) x Reading Comp.

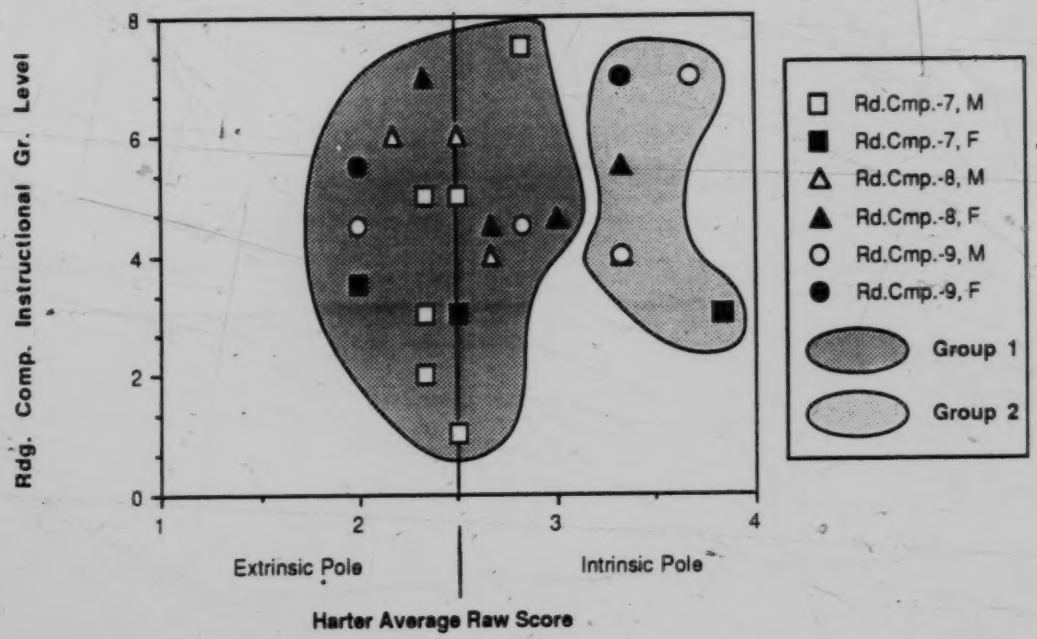


Figure 8 - Motivation Orientation (Internal vs. External Criteria) by Reading Comprehension

The Internal/External subscale of Harter's (1980) measure of Motivation Orientation taps the degree to which a child evaluates his or her performance in school. If a student is able to evaluate his performance independently, this is viewed as an Internal Criteria and intrinsic orientation towards learning. If a student requires external methods of evaluation and is dependent on others to evaluate his performance, then this is viewed External Criteria and extrinsic orientation towards learning. Harter described the intrinsic and extrinsic range on the internal/external criteria in the

following manner :

Intrinsic Pole		Extrinsic Pole
Internal Criteria (Does the child know when he/she has succeeded or failed on school assignments or tests ...)	vs.	External Criteria (Is the child dependent upon external sources of evaluation such as teacher feedback, grades, marks?)

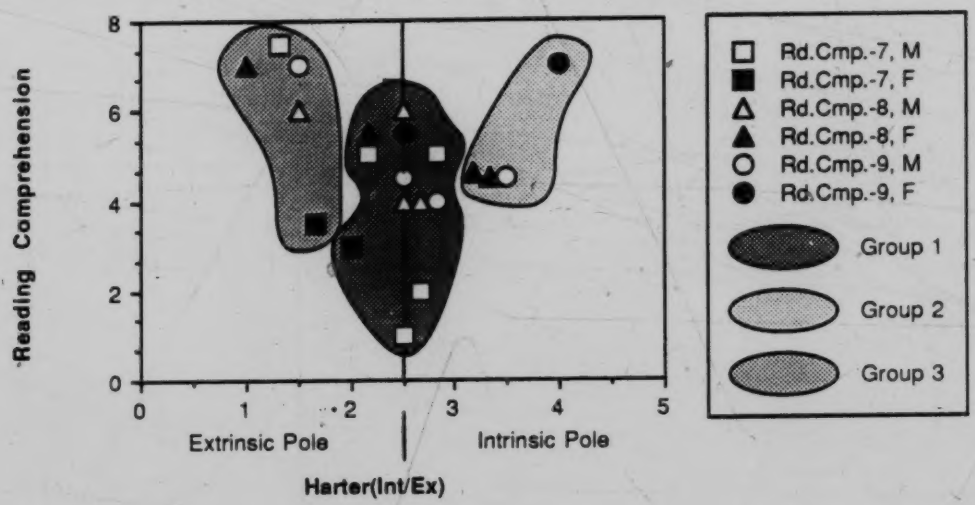
(Harter,1980, p. 1)

On Figure 8, three subgroups of LD students have been identified. The largest group (indicated as group 1) represented those students who fall within the average range, and cannot be characterized as being either extrinsically or intrinsically oriented towards evaluation of performance. The subgroup identified as group 2 on the scattergram indicated a group of LD students who are more intrinsically oriented, are independent, and who make their own evaluations about performance in school. The third subgroup revealed by the scattergram analysis are more extrinsically motivated towards learning. These LD students are dependent on the teacher to evaluate their performance and direct learning. It is interesting to note that this subgroup also attained the highest instructional reading comprehension scores.

The total LD group cannot be differentiated on the basis of gender, grade or instructional reading comprehension grade level. A generalization might be made on the basis of these results, that there is wide variation in the criteria (external or internal) that LD students use to determine success or failure in the classroom.

Figure 8

Motivation Orientation (Internal vs. External Criteria) x Reading Comprehension



In summary, an analysis of the scattergrams illustrated the following relationships among dependent and independent variables:

1. When viewing the total sample of LD adolescents, it is obvious that their achievement, intellectual ability and affective and motivation characteristics are varied and heterogeneous.
2. Because instructional reading comprehension level remained constant on the various scattergrams, it was possible to observe the variations in individual student self concept and motivation. This result supported the view that self-concept is multifaceted and domain specific.
3. Individual performance scores were followed for 2 LD males across the individual subscales of PASS. The results indicated that student self-perceptions can vary greatly across the different

subscales. This may be due to a variety of factors which influence the development of individual self-concept, such as remedial intervention and the coping skills within each individual student.

4. Gender differences were observed on the scattergrams which illustrated the full scale and penmanship/neatness subscales of the PASS (full scale and penmanship neatness).

5. Several subgroups of LD adolescents were identified and outlined on the scattergram.

Chapter VI

Discussion

The results of this study did not confirm the conclusions which were formulated by Silverman and Zigmond (1983) which found that LD adolescents do not exhibit below average self-concepts. The Silverman and Zigmond (1983) study is one of the only three studies which attempted to evaluate the self-concept of LD adolescents. Unfortunately that study utilized a global measure of self-concept, and therefore may have found an inaccurate general perception of the self-concept of LD adolescents. According to the present study, and the Chapman and Wilkinson (1988) study, the learning disabled adolescent can be classified as exhibiting a weak or below average academic self-concept. It is likely that a more reliable and accurate measurement of self-concept is to be obtained by utilizing the PASS, especially with LD students, because it pertains specifically to those tasks where the LD is likely to experience failure, such as reading, math, and spelling. Because the learning disabled student might demonstrate average or better performance in a variety of areas, it is essential to utilize an assessment device which clearly illustrates the strengths and weaknesses of the LD student across a variety of school related areas and domains.

This study does confirm Chapman's (1988) conclusion that academic self-concept was a more accurate indicator of the self-concept of LD adolescents than those measurement instruments

which tap areas of general self-esteem. In direct answer to research question number one "Do LD adolescents exhibit an increase or decrease in self-concept over the course of the junior high years as measured by the Perception of Ability Scale for Students (PASS)", this study indicated that a significant increase in negative self-concept was found at the end of the ninth grade. However, the results of this study should be interpreted cautiously for the following reasons.

1. Generalizations are limited due to the small sample size.
2. The sample was heterogeneous and was composed of a group of severely LD adolescents who were not randomly selected; some of these students might not qualify as being LD other than the fact that they had been assigned to a segregated classroom for LD students.
3. Another limitation of this study might involve experimenter bias, as the sample consisted of students that the researcher taught, and, while the researcher attempted to be as objective as possible, it is still possible a slight bias may be reflected in the interpretation of the results.

The results of this study also confirmed the predictions by Chapman (1988) and Deshler, Schumaker and Ellis (1986) that LD adolescents develop increasingly negative perceptions of school during the adolescent years. This was evidenced by the significant differences on the 2 x 3 Anovas between grade nine and grade seven-eight students. It is important to note that the number of grade nine students in this study are small, and any generalization is limited. One reason that the grade nine LD adolescents displayed

increased negative academic self-concept might be because at the end of the next grade these students are required to make decisions about careers. The limited career choices available to these students underscore their limited academic achievement and emphasize feelings of failure and negative self-worth. The Chapman and Wilkinson (1988) study is one of the few studies which has analyzed the self-concept of learning disabled adolescents longitudinally. The results of the Chapman and Wilkinson study demonstrated an increase in the negative self-concept of LD adolescents during the junior high years (Grade seven to nine). Comparisons between this study and the Wilkinson and Chapman (1988) study are limited because of the differences between the two samples. The LD subjects in the Chapman and Wilkinson (1988) study were mainstreamed and the LD adolescents in this study were in a segregated classroom. LD students which are placed in a segregated classroom are likely to exhibit more severe learning disabilities than mainstreamed LD students. As well, segregated LD students are likely to have experienced more failure, and to have gradually developed increased levels of negative self-concept.

It is important to note that a variety of subgroups of LD students could be identified from the scattergrams and that individual differences in self-perceptions of ability could be observed within this sample of LD students. The variability in performance among the LD subjects further illustrated the importance of utilizing a multidimensional and eclectic perspective when developing remedial programs for LD adolescents.

Research question #2 asked, "What affective variables (self-concept and motivation orientation) as measured by the PASS and the Scale of Intrinsic Versus Extrinsic Orientation are the best predictors of reading achievement?" The results of the data analysis indicated that the reading/spelling subscale was the best predictor of reading achievement.

Post Hoc examination of the data indicated that significant ($p>.05$) gender differences were found on three subscales. On the subscale which measured penmanship/neatness, males considered themselves significantly less able handwriters, and less neat than did females. Gender differences were also found on the PASS full scale score. Male LD adolescents had significantly lower self-concept scores than female LD students. The longitudinal study by Chapman and Wilkinson (1988) indicated a similar finding. Gender differences were also observed on the preference for challenge subscale of Harter's (1980) measure of intrinsic/extrinsic motivation orientation. The results indicated that LD female's task preference is for easy tasks which can be easily mastered and thus ensure success. Male LD students prefer tasks which are challenging. Licht and Kistner (1984) reported a similar finding in a study which examined the performance differences between males and females on a novel concept formation task. On the basis of grades, students were divided into groups (A, B, C, D) males and females and were given a novel concept formation task. A significant sex difference was found for A group female students; these students were most debilitated by failure. In contrast, A

group male students were facilitated by the novel concept formation task. Licht also found a sex difference in task preference between group A males and females. A females preferred tasks that they perceived themselves as being good at; whereas A males' task preference was for novel challenging tasks.

In summary and in response to question #2, the affective and motivational variables which were the best predictors of reading achievement were the PASS-reading spelling subscale. Post hoc examination indicated that Gender differences could be observed on the PASS full scale score, the PASS penmanship/neatness subscale, and the subscale from Harter's measure of motivation orientation which measured preference for challenge.

CHAPTER VII

Conclusion

This study indicated that LD adolescents exhibited negative self-concepts and maladaptive motivational patterns towards learning which correlated moderately with reading achievement. Gender differences were found within the LD sample on measures of penmanship/neatness and full scale PASS scores. Grade nine LD students had significantly lower scores on the PASS full scale and penmanship neatness subscales than those LD students in grade seven or eight.

The motivation orientation of LD adolescents varied according to gender, task preference, curiosity and amount of independent judgement exercised in the learning situation. Significant gender differences were found on the subscale which measures task preference (easy or difficult). Females preferred easy tasks where success was ensured whereas males preferred challenging and more difficult tasks. Male LD adolescents tend to exhibit a more intrinsic orientation to a task which tapped curiosity and interest, and are less motivated to learn in order to gain teacher approval and grades. Another subscale (Internal/External Criteria) confirmed that as a total group these LD students are more dependent and rely on teacher's judgement to make decisions about learning.

An analysis of the affective variables and their relationship to reading comprehension demonstrated the importance of these variables when considering interventions for severely learning

disabled students. Learning disabled adolescents drop out of school during the junior high years; even those LD adolescents who are demonstrating adequate achievement levels (Bender, 1987). In developing effective programs for LD students, it is necessary to develop positive perceptions of self-worth provide and enhance motivation so that the LD will attempt and persist on learning tasks in school. The key to remediation for the severely disabled adolescent may be to provide him/her with realistic expectations for success and provide them with opportunities to develop a positive sense of self-worth. Every student has the right and capacity within our education system to feel positive about themselves and it is the responsibility of educators to promote the development of these affective characteristics.

Implications for Future Research

The results indicated that future research might focus further on the development of intrinsic motivation in the classroom. A subgroup of LD adolescents have a strength which was found on the motivation subscale that taps curiosity and interest as opposed to completing tasks in order to please the teacher or get good grades. This subgroup of LD adolescents retain an intrinsic orientation towards learning, which is similar to motivation orientation of students at an earlier grade level. A key to remediation for this subgroup of LD adolescents would be to focus on the intrinsic interest of LD students. This could be accomplished by embedding reading strategies in subject areas that are interesting to the LD student and stimulate curiosity. This procedure is thought to

enhance strategy acquisition, transfer and generalization (Ellis, 1986).

Another implication for future research might involve a focus on the development of self management skills in the LD adolescent. This study indicated that affective variables interact with motivation variables which may inhibit achievement and learning in the classroom. The LD adolescent must develop positive academic self-perceptions before he/she can successfully engage in the learning process (Chapman, 1988; Bender, 1987). An area for future research would focus on instructional procedures which develop positive academic self-perception in the LD adolescent through the incorporation of self-management skills.

LD adolescents have weak or below average academic self-concepts combined with corresponding lower levels of reading achievement. Future research might focus on the development of remedial programs for LD adolescents which include a variety of procedures that enhance self-concept and motivation in order to determine what instructional sequence best promotes active, independent learners, who are more likely to remain in the school system and become productive members of society.

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APPENDIX 1

(These items were taken from the manual "A Scale of Intrinsic Versus Extrinsic Motivation in the Classroom" by Harter, 1980)

Item No. refers to the position on the child's form and the scoring key. Items keyed I-E present the intrinsic aspect first in the sentence, whereas items keyed E-1 present the extrinsic aspect first.

ITEM No.	KEYED	
		PREFERENCE FOR CHALLENGE vs. PREFERENCE FOR EASY WORK ASSIGNED
1	I-E	Some kids like hard work because it is a challenge,but other kids prefer easy work that they are sure they can do.
6	I-E	Some kids like difficult problems because they enjoy trying to figure them out but other kids don't like to figure out difficult problems.
		CURIOSITY/INTEREST vs. PLEASING THE TEACHER
3	I-E	Some kids work on problems to learn how to solve them but other kids work on problems because you are supposed to.
7	E-I	Some kids do their school work because the teacher tells them to but other kids do their school work to find out about a lot of things they have been wanting to know.

(Appendix continues . . .)

(Appendix continued . . .)

ITEM No.	KEYED	
		INDEPENDENT MASTERY vs. DEPENDENCE ON THE TEACHER
2	E-I	When some kids don't understand something right away they want the teacher to tell the answer but other kids would rather try figure it out by themselves.
3	I-E	When some kids make a mistake they would rather figure out the right answer by themselves but other kids would rather ask the teacher how to get the right answer.
		INDEPENDENT JUDGEMENT vs. RELIANCE ON THE TEACHER'S JUDGMENT
4	E-I	Some kids almost always think that what the teacher says is O.K. but Other kids sometimes think their own ideas are better.
10	E-I	Some kids agree with the teacher because they think that the teacher is right about most things but Other kids don't agree with the teacher sometimes and stick to their own opinions.
		INTERNAL CRITERIA FOR SUCCESS/FAILURE vs. EXTERNAL CRITERIA
5	I-E	Some kids know when they've made mistakes without checking with the teacher but other kids need to know if they've made a mistake.
9	I-E	Some kids know whether or not they're doing well in school without grades but other kids need to have grades to know how well they are doing in school.